



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

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D407-667-205TRN
Job Sheet 199411



Part No: D407-667-205TRN

Job Qty: 1 pcs

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 8/22/19

Job Tracking No:

Due Date: 9/4/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG REV G IPP Rev:A 08-03-06 new issue DD verified by:ec IPP Rev B 08.04.02 Removed polish EC verified by: DD IPP Rev:C 08-08-19 revE as per dwg DD verified by:EC

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Lead Time	Sign-off	
					Setup Hrs	Run Hrs	Workcenter / Supplier				
100	Mori Seiki TL-40 - 1	1 pcs		9/4/19	1.00	3.13	Mori Seiki TL-40 - 1			DAS 66 2019/10/12 9-89	
110	QC 2	1 pcs		9/4/19	0.00	0.00	QC 2 - 1				
							QC 2 - 12				
							QC 2 - 14				
							QC 2 - 17				
							QC 2 - 19				
							QC 2 - 2				
							QC 2 - 20				
							QC 2 - 22				
							QC 2 - 23				
							QC 2 - 25				
							QC 2 - 32				
							QC 2 - 33				
							QC 2 - 35				
							QC 2 - 39				
							QC 2 - 4				
							QC 2 - 40				
							QC 2 - 44				
							QC 2 - 45				
							QC 2 - 48				
							QC 2 - 49				
							QC 2 - 50				
							QC 2 - 51				
							QC 2 - 52				
							QC 2 - 57				
							QC 2 - 62				
							QC 2 - 63				
							QC 2 - 8				DAS 66 2019/10/12 9-89
							QC 2 - 66				
QC 2 - 64											

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					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
120	Mori Seiki TL-40 - 1 - B4B	1 pcs	9/4/19	1.00 3.13	Mori Seiki TL-40 - 1 - B4B	DAS 662019/10/15 9-89
130	QC 2	1 pcs	9/4/19	0.00 0.00	QC 2 - 1	
					QC 2 - 12	
					QC 2 - 14	
					QC 2 - 17	
					QC 2 - 19	
					QC 2 - 2	
					QC 2 - 20	
					QC 2 - 22	
					QC 2 - 23	
					QC 2 - 25	
					QC 2 - 32	
					QC 2 - 33	
					QC 2 - 35	
					QC 2 - 39	
					QC 2 - 4	
					QC 2 - 40	
					QC 2 - 44	
					QC 2 - 45	
					QC 2 - 48	
					QC 2 - 49	
					QC 2 - 50	
					QC 2 - 51	
					QC 2 - 52	
					QC 2 - 57	
					QC 2 - 62	
					QC 2 - 63	
					QC 2 - 8	
					QC 2 - 66	DAS 662019/10/15 9-89
					QC 2 - 64	
					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
140	QC 8	1 pcs	9/4/19	0.00 0.00	QC 8 - 12	
					QC 8 - 14	
					QC 8 - 17	
					QC 8 - 20	
					QC 8 - 25	
					QC 8 - 3	
					QC 8 - 32	
					QC 8 - 33	
					QC 8 - 35	
					QC 8 - 39	
					QC 8 - 4	
					QC 8 - 44	
					QC 8 - 45	
					QC 8 - 49	
					QC 8 - 58	
					QC 8 - 8	
					QC 8 - 9	
					QC 8 - 68	

					QC 8 - 67	
					QC 8 - 1 (A)	DAS
					QC 8 - 47	47 19-10-17
					QC 8 - 40	9-89
					QC 8 - 52	
					QC 8 - 23	
					QC 8 - 57	
145 Crosstubes - 2 - B4B	1 pcs	9/4/19	0.00 0.65		Crosstubes - 1 - B4B	
					Crosstubes - 2 - B4B	EB
					Crosstubes - 3 - B4B	
					Crosstubes - 4 - B4B	
150 Handfinish - 1-1 Chemical-B4B	1 pcs	9/4/19	0.00 0.67		Handfinish - 1 - 1 - B4B	BE 19-10-24
					Handfinish - 1 - 2 - B4B	
					Handfinish - 1 - 3 - B4B	
					Handfinish - 1 - 4 - B4B	
					Handfinish - 1 - 5 - B4B	
					Handfinish - 1 - 6 - B4B	
					Handfinish - 1 - 7 - B4B	
					Handfinish - 1 - 8 - B4B	
					Handfinish - 1 - 9 - B4B	
					Handfinish - 1 - 10 - B4B	
					Handfinish - 1 - 11 - B4B	
					Handfinish - 1 - 12 - B4B	
					Handfinish - 1 - 13 - B4B	
					Handfinish - 1 - 14 - B4B	
					Handfinish - 1 - 15 - B4B	
					Handfinish - 1 - 16 - B4B	
					Handfinish - 1 - 17 - B4B	
					Handfinish - 1 - 18 - B4B	
					Handfinish - 1 - 19 - B4B	
					Handfinish - 1 - 20 - B4B	
					Handfinish - 1 - 21 - B4B	
					Handfinish - 1 - 22 - B4B	
160 QC 7	1 pcs	9/4/19	0.00 0.00		QC 7 - 10	
					QC 7 - 13	
					QC 7 - 14	
					QC 7 - 15	
					QC 7 - 17	
					QC 7 - 18	
					QC 7 - 19	
					QC 7 - 2	
					QC 7 - 28	
					QC 7 - 3	
					QC 7 - 30	
					QC 7 - 34	
					QC 7 - 36	
					QC 7 - 37	
					QC 7 - 41	
					QC 7 - 47	
					QC 7 - 48	
					QC 7 - 51	
					QC 7 - 58	
					QC 7 - 59	
					QC 7 - 60	
					QC 7 - 9	DAS
					QC 7 - 68	76
					QC 7 - 50	9-89
					QC 7 - 67	2019-11-1
					QC 7 - 40	

170 Packaging 3-1 - Stock - B4B	1 pcs	9/4/19	0.00 0.00	QC 7 - 24	
				QC 7 - 43	
				QC 7 - 61	
				QC 7 - 81	
				Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	BB 2019-11-1
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
180 QC 21 - SA	1 pcs	9/4/19	0.00 0.00	QC 21 - SA - 21	DAS
				QC 21 - SA - 70	21
				QC 21 - SA - 53	9-39

NOV 01 2019

Part Op 100 - Mori Seiki CNC Lathe Large) 1-Fill tube with sand & install plugs DT8531 on both ends as per Folio FA248 3-Turn Descriptions: first side as per Folio FA248

110 - (QC2- Inspect parts off machine FAI/FAIB)

120 - (Mori Seiki CNC Lathe Large) 1-Turn second side as per Folio FA248 4-Scribe part # and batch # using vibrating stylus as per Dwg D407-667-245

130 - (QC2- Inspect parts off machine FAI/FAIB)

140 - (QC8- Inspect parts - second check)

145 - (Crosstubes) Grind off circumferential machining marks longitudinally.

150 - 1- handfinish X-TUBE INSIDE AND OUT 2- ACID ETCH X-TUBE INSIDE AND OUT. USE RED SCOTCH BRITE

160 - (QC7-Inspect Chemical Conversion Coat)

170 - Identify and stock in kanban rack

180 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6011-115	Crosstube Material	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	FL39420

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6011-115	1	48	0
Part Specifications				
Specifications could not be found.				

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Container No: S222132



Part: D407-667-205TRN

Job No: 199411

Serial No/Batch: S222132

Revision: G

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
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Email: sales@dartaero.com
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Date: 10/12/19

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DART AEROSPACE LTD	Work Order:	199411
Description: Crosstube Assembly	Part Number:	D407-667-245
Inspection Dwg: D407-667-245 Rev: G		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.490	+0.005/-0.000	2.493	✓		CNC-04	
	1.832	+0.005/-0.000	1.837	✓		CNC-08	
	1.838	+0.005/-0.000	1.843	✓		↓	
	1.892	+0.005/-0.000	1.897	✓			
	2.052	+0.005/-0.000	2.057	✓		CNC-04	
	2.206	+0.005/-0.000	2.211	✓		↓	
	2.521	+0.005/-0.000	2.526	✓		↓	
	2.633	+0.005/-0.000	2.638	✓		↓	
	4.10	+/-0.030	4.10	✓		CNC-08	
	4.978	+/-0.030	4.980	✓		"	
	2.040	+0.000/-0.010	2.040	✓		CNC-08	
	0.125	+/-0.010	.126	✓		"	
	R0.063	+/-0.010	.063	✓		RG	
	R0.500	+/-0.010	.500	✓		"	
SIDE B	2.490	+0.005/-0.000	2.493	✓		CNC-04	
	1.832	+0.005/-0.000	1.836	✓		CNC-08	
	1.838	+0.005/-0.000	1.842	✓		↓	
	1.892	+0.005/-0.000	1.896	✓			
	2.052	+0.005/-0.000	2.056	✓		CNC-04	
	2.206	+0.005/-0.000	2.211	✓		↓	
	2.521	+0.005/-0.000	2.526	✓		↓	
	2.633	+0.005/-0.000	2.638	✓		↓	
	4.10	+/-0.030	4.10	✓		CNC-08	
	4.978	+/-0.030	4.976	✓		"	
	2.040	+0.000/-0.010	2.045	✓	✓	CNC-08	
	0.125	+/-0.010	.121	✓		"	
	R0.063	+/-0.010	.063	✓		RG	
	R0.500	+/-0.010	.500	✓		"	
	112.91	+/-0.020	112.92	✓		Tape	

Item	QTY	PART NUMBER	DESCRIPTION
	X	D407-867-245	CROSS-TUBE ASSEMBLY (407 HIGH AFT)
1	1	D8011-115	CROSS-TUBE
2	2	D2873-043	NUT PLATE
3	2	D2873-045	NUT PLATE
4	1	D2894-1	SUPPORT
5	2	D3180-1	CHAFING SHIELD
6	2	D3585-083-430	RUBBER CUSHION
7	14	MS20801AD4V8	RIVET (OR NAS802B-4-8)
8	4	MS21920-22	CLAMP
9	2	MS21920-25	CLAMP (OR MS21920-24)
10	AR	SCOTCH-WELD DF460	EPOXY ADHESIVE, 3M SCOTCH-WELD
11	AR	PROSEAL 880	SEALANT

GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D8011-115
FINISHED LENGTH = 112.9150.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT CROSS-TUBE PER DART QSI 005 4.2
FOR HATCHED AREAS (ZN AB-2), MASK AS REQUIRED
TO APPLY PRIME AND APPLY CLEAR COAT ONLY
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D407-867-245" AND BATCH NUMBER ON INSIDE OF CLAMP USING VIBRATING STYLUS.
- WEIGHT: 27.7 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN-OFF PART: BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 8% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSS-TUBE PER QSI 008.
- INSTALL D2894-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-25 CLAMPS WITH D3585-083-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSS-TUBE. ENSURE CLAMPS ARE OPPOSITE CROSS-TUBE SUPPORT.
- NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- APPLY A THIN COAT OF PROSEAL 880 ON INSIDE CONCAVE SURFACE OF D3180-1 CHAFING SHIELDS AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEAL 880 ONTO CROSS-TUBE. BE SURE TO ELIMINATE ANY AIR GAPS.
- INSTALL D3180-1 CHAFING SHIELDS SO THAT OVERLAP IS 50 TO 70 DEGREES FROM BOTTOM OF CROSS-TUBE OPPOSITE D2894-1 SUPPORT.
- TORQUE CLAMPS 80 TO 100 IN-LBS. TORQUE CLAMPS ON D3180-1 CHAFING SHIELD 40 TO 50 IN-LBS. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 199411

11-5
19-08-22

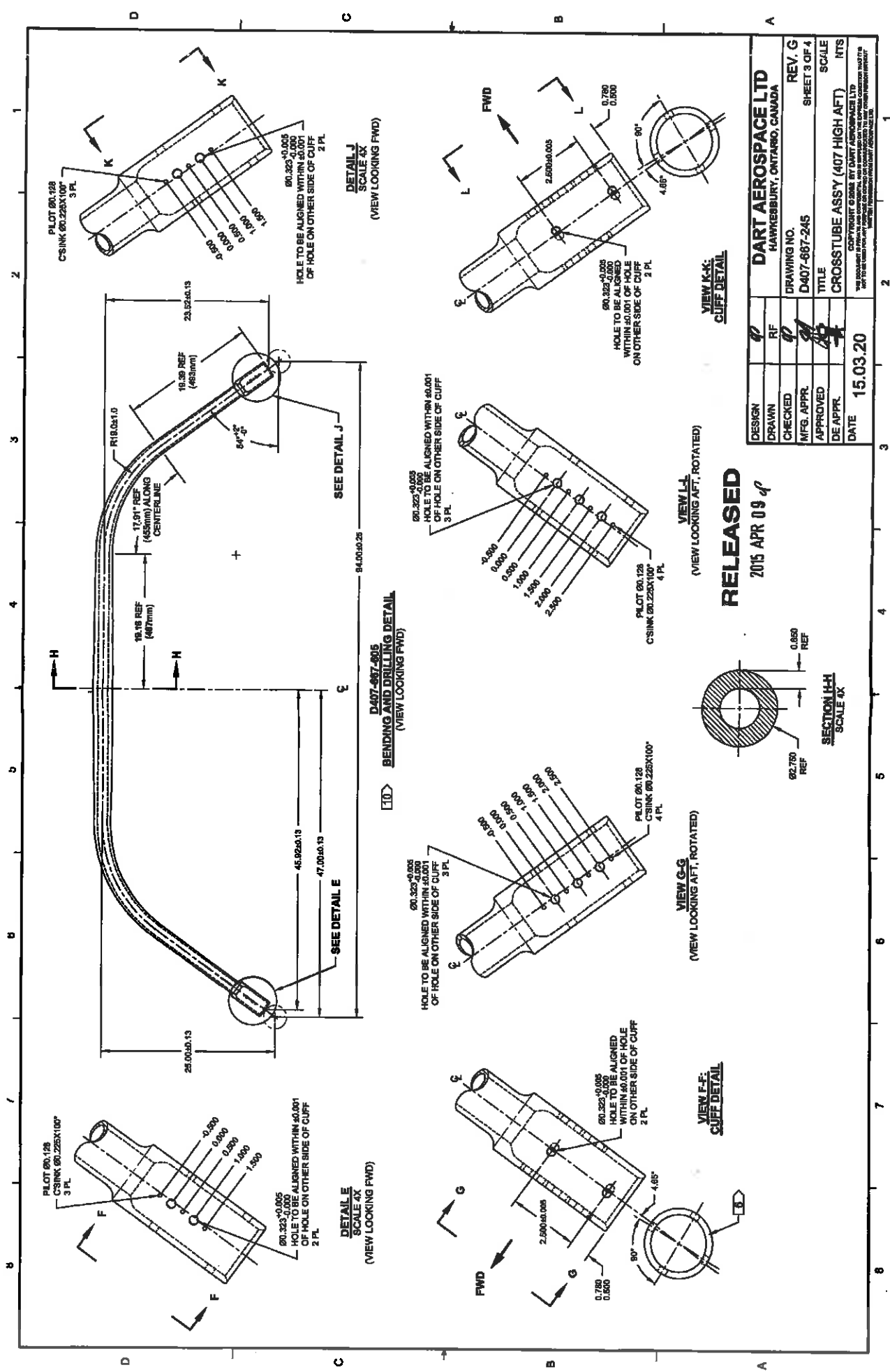
G	INCORP. DES'D 407-867-245-F1/F2 (ZN D5-1, A8-1, D5-2, B6-2, C6-2); 8.80 WAS 8.58 (ZN D5-2); TORQUE REDUCED FOR CHAFING SHIELD (ZN A8-1); FINISH REVISED TO ALLOW MANUFAC. FLEXIBILITY (ZN C8-1)	RF	15.03.20
F	REFORMAT NOTES TO NEW STANDARDS (ZN B8-1); RELOCATED FLAG # 8 (ZN A8-3) PER NCR 210; REMOVED REF. & ADD TOLERANCES (ZN C8-3, C4-3 & D2-3)	RF	08.11.00
E	8.02 AND 8.53 WERE 8.40 AND 8.90 (ZN D5-2); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. REASONS: CLAMPS MOVED 0.375 TOWARD CL TO ELIMINATE INTERFERENCE WITH AIRCRAFT MOUNTS. REFERENCE: PAR005-21 AND ECR#1225	MB	08.07.24
D	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F; REMOVE -867 ABRASION STRIP; ADD MAGNABOND 6598, ADD CUSHION	PH	07.02.07
C	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHTMA SKIDTUBES	PH	05.07.28
B	ADD CHAFING SHIELD	CP	03.05.21
A	NEW ISSUE	CP	02.05.13
REV.	DESCRIPTION	BY	DATE
DESIGN	1	RF	
CHECKED			
MFG. APPR.			
APPROVED			
DATE	15.03.20		

RELEASED

2015 APR 09
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DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA
DRAWING NO. D407-867-245
SHEET 1 OF 4
TITLE CROSS-TUBE ASSY (407 HIGH AFT)
SCALE
REV. G
REV. G
DATE 15.03.20

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